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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/733,325

12/12/2003

Claude Beaulieu

86200-11

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08/21/2006

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EXAMINER

KIANNI, KAVEH C

ART UNIT

PAPER NUMBER

2883

DATE MAILED: 08/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/733,325	<b>Applicant(s)</b> BEAULIEU ET AL.	
	<b>Examiner</b> Kianni C. Kaveh	<b>Art Unit</b> 2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 May 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-38, 48-52, 54 and 56 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 19-22, 48-52, 54 and 56 is/are rejected.
- 7) ☒ Claim(s) 4-18 and 23-37 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.



**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Allowable Subject Matter***

Claims 4-18, 23-37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 4-18 and 23-37 are allowable because the prior art of record, taken alone or in combination, fails to disclose or render obvious wherein the index of refraction is altered in a non-uniform manner over the second portion in combination with the rest of the limitations of the base claim.

## **Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3, 19, 20-22, and 48-52, 54 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Land (US 6067391).

Regarding claims 1-3, 19, 54 and 56, Land teaches an apparatus for treating a waveguide sensitive to electromagnetic radiation (shown at least in fig. 14 and 16 and see at least col. 9, last parag.-col. 10, 1<sup>st</sup> parag.), comprising;

a) a first mask G2 for conditioning a first beam of electromagnetic radiation and producing a first conditioned beam of electromagnetic radiation (see fig. 14/16 item mask/G2);

b) a second mask G3 for conditioning a second beam of electromagnetic radiation and producing a second conditioned beam of electromagnetic radiation (see fig. 14/16 item mask/G3);

c) the first and the second conditioned beams of electromagnetic radiation (see fig. 14/16 items radiation beams) being characterized in that:

i) when they are directed toward the waveguide sensitive to electromagnetic radiation, a treatment area of the substrate sensitive to electromagnetic radiation is exposed to electromagnetic radiation (shown in at least fig. 14 and 16; see at least col. 9, last parag.-col. 10, 1<sup>st</sup> parag.);

ii) the treatment area including:

a first portion exposed to only one of the first and the second conditioned beams of electromagnetic radiation; and a second portion exposed to both the first and the second conditioned beams of electromagnetic radiation to create an interference pattern over the second portion, wherein the second portion is surrounded by the first portion

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(see at least col. 33, 2<sup>nd</sup> parag.; wherein partial exposure/overlap of the first and second beam produce interference pattern surrounded by the first portion).

However, Land in the first embodiment does not specifically teach wherein the above waveguide is a substrate. Nevertheless, in another embodiment Land states that a waveguide exposed and effected/sensitive by/to the EM radiation can be substrate-waveguides (see at least col. 10, 1<sup>st</sup> parag.). Thus, it would have been obvious to a person of ordinary skill in the art when the invention was made combine different embodiments of Land by substitute the above waveguide by a substrate/substrate-waveguide, since such apparatus, motivated by, providing high transmission optical system with multiple refractive indices (see col. 2, 4<sup>th</sup> paraqq.).

Regarding claim 19, Land further teaches wherein the first beam of electromagnetic radiation a substrate sensitive to electromagnetic radiation having an index of refraction modified (see at least fig. 1, item modified refractive index of a waveguide/substrate).

Regarding claim 20-22, and 56, Land teaches a method for Inducing a modification of the Index of refraction of a waveguide sensitive to electromagnetic radiation (shown at least in fig. 14 and 16 and see at least col. 9, last parag.-col. 10, 1<sup>st</sup> parag.), comprising;

a) conditioning with a first mask a first beam of electromagnetic radiation and producing a first conditioned beam of electromagnetic radiation (see fig. 14/16 item mask/G2);

b) conditioning with a second mask a second beam of electromagnetic radiation and producing a second conditioned beam of electromagnetic radiation (see fig. 14/16 item mask/G3);

c) directing the first and the second conditioned beams of electromagnetic radiation toward the substrate sensitive to electromagnetic radiation to expose a treatment area of the substrate to electromagnetic radiation (see fig. 14/16 items directed radiation beams);

the treatment area including:

a first portion exposed to only one of the first and the second conditioned beams of electromagnetic radiation; and a second portion exposed to both the first and the second conditioned beams of electromagnetic radiation to create an interference pattern over the second portion wherein the second portion is surrounded by the first portion (see at least col. 33, 2<sup>nd</sup> parag.; wherein partial exposure/overlap of the first and second beam produce interference pattern surrounded by the first portion); Regarding the limitation substrate, the arguments presented in rejection of claim 1 is analogous in rejection of claim 20.

Regarding claims 38 the arguments presented in rejection of claim 19 are analogous in rejection of claim 38.

Regarding claims 48-52, Land teaches method for inducing a modification of the index of refraction of a waveguide sensitive to electromagnetic radiation (shown at least in fig. 14 and 16 and see at least col. 9, last parag.-col. 10, 1<sup>st</sup> parag.), said method comprising:

a) generating a first beam of electromagnetic radiation and a second beam of electromagnetic radiation different from the first beam of electromagnetic radiation (shown in at least fig. 14, items two optical beams);

b) directing the first and the second beams of electromagnetic radiation toward the substrate sensitive to electromagnetic radiation to expose a treatment area on the substrate to electromagnetic radiation, the first and the second beams of electromagnetic radiation being such that the treatment area includes

a first portion exposed to only one of the first and the second conditioned beams of electromagnetic radiation; and a second portion exposed to both the first and the second conditioned beams of electromagnetic radiation to create an interference pattern over the second portion (see at least col. 33, 2<sup>nd</sup> parag.; wherein partial exposure/overlap of the first and second beam produce interference pattern);.

Regarding the limitation substrate, the arguments presented in rejection of claim 1 is analogous in rejection of claim 48.

Land further teaches wherein the first and the second conditioned beams of electromagnetic radiation induce a predetermined gaseous/hydrogen profile in the substrate (shown in at least fig. 11; wherein heat generated for writing the gratings produces gas including hydrogen in which the gratings are created as profile; note that

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this limitation is mere descriptive by the applicant which is not crucial to the invention and nor it is described in detail in the specification as to the merit of such 'gaseous profile'); wherein said first mask imparts a first cross-sectional shape to the first beam of electromagnetic radiation, said second mask imparts a second cross-sectional shape to the second beam of electromagnetic radiation, the first cross-sectional shape being different from the second cross-sectional shape (see at least figures 12 and 14 and col. 33, 2<sup>nd</sup> parag.; wherein partial exposure/overlap of the first and second beam produce interference pattern; wherein the first mask G2 creates a different cross section grating than that of the second mask G3 having differing shape/grating-spacing); wherein said first mask imparts a phase shift to the first beam of electromagnetic radiation (shown in at least fig. 12 and 14); wherein the second portion is surrounded by the first portion (see at least col. 33, 2<sup>nd</sup> parag.; wherein the second portion/superimposed-section is surrounded by the first portion).

### ***Response to Arguments and Amendment***

Applicant's argument filed on 5/30/06 have been fully considered, however, applicants arguments specifically regarding the above independent claims are not persuasive.

After careful review of the claims the examiner called Mr. Tremblay, on 8/14/06, and explained that the current amendment to the claims, as stated above, are taught by Land, and thus offered a different amendment to allow the claims but Mr. Tremblay asked for later review of the office action and review of the reference teachings.



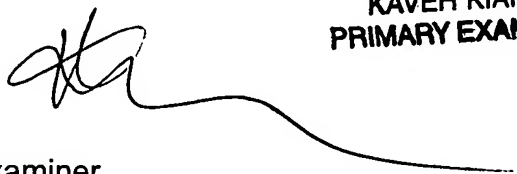
**Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kianni C. Kaveh whose telephone number is 571-272-2417. The examiner can normally be reached on 9:30-19:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**KAVEH KIANNI  
PRIMARY EXAMINER**



K. Cyrus Kianni  
Primary Patent Examiner  
Group Art Unit 2883

August 15, 2006